

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
12 October 2006 (12.10.2006)

PCT

(10) International Publication Number  
WO 2006/107720 A1

## (51) International Patent Classification:

G09G 3/28 (2006.01) H01J 29/10 (2006.01)  
G09G 3/20 (2006.01) G03B 21/56 (2006.01)  
G09G 3/22 (2006.01) G03B 21/60 (2006.01)  
G09G 3/30 (2006.01) G03B 21/00 (2006.01)

## (72) Inventors; and

(75) Inventors/Applicants (for US only): KENT, David [US/US]; 43 Wayside Inn Road, Framingham, Massachusetts 01701 (US). MALYAK, Phillip, H. [US/US]; 40 Culloden Drive, Canton, Massachusetts 02021 (US). HAJJAR, Roger, A. [US/US]; 1050 Camino Ricardo, San Jose, California 95125 (US). TAN, Patrick [MY/US]; 3 Wilson Street, Wellesley, Massachusetts 02482 (US). KINDLER, David [US/US]; 78 Elsinore St., Concord, Massachusetts 01742 (US).

## (21) International Application Number:

PCT/US2006/011757

## (22) International Filing Date: 31 March 2006 (31.03.2006)

## (25) Filing Language: English

## (26) Publication Language: English

## (30) Priority Data:

60/667,839 1 April 2005 (01.04.2005) US  
11/116,998 27 April 2005 (27.04.2005) US  
60/683,381 20 May 2005 (20.05.2005) US  
60/683,262 20 May 2005 (20.05.2005) US  
60/690,760 14 June 2005 (14.06.2005) US  
60/733,342 2 November 2005 (02.11.2005) US  
11/335,813 18 January 2006 (18.01.2006) US  
11/337,170 19 January 2006 (19.01.2006) US

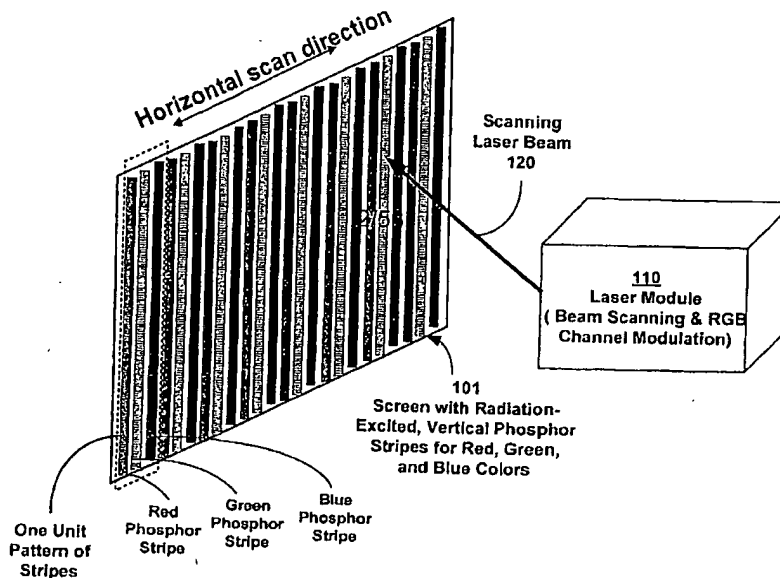
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (for all designated States except US): SPUD-NIK, INC. [US/US]; 135 Riviera Drive, Apt. 435, Los Gatos, California 95032 (US).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: DISPLAY SYSTEMS AND DEVICES HAVING SCREENS WITH OPTICAL FLUORESCENT MATERIALS



(57) Abstract: Fluorescent screens (101) and display systems and devices based on such screens (101) using at least one excitation optical beam (120) to excite one or more fluorescence materials (Red, Green, and Blue) on a screen (101) which emit light to form images. The fluorescence materials (Red, Green, and Blue) may include phosphor materials and non-phosphor materials such as quantum dots. A screen (101) may include a multi-layer dichroic layer.